

**Follow-up Meeting for the Guiana Shield and Consultations on the
Draft Plan for Artemisinin Resistance Containment and Elimination in
South America**

**Paramaribo, Suriname
November 11 – 13, 2014**

**Amazon Malaria Initiative (AMI)
Amazonian Network for Surveillance of
Antimalarial Resistance (RAVREDA)**

Trip Report

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About Links Media

Links Media, LLC is a management consulting company based in the Washington D.C. metropolitan area, specializing in information technology and marketing communications. We provide advanced management consultation services to governments and private sector clients in the areas of health, environment, science and technology, biotechnology, governance, human rights, economic prosperity, conflict resolution, education, public engagement, risk and crisis management, and social entrepreneurship.

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Abbreviations and Acronyms

| | |
|----------|---|
| AMI | Amazon Malaria Initiative |
| BCC | Behavior change communication |
| CDC | U.S. Centers for Disease Control and Prevention |
| COTR | Contracting Officer's Technical Representative |
| EMMIE | Elimination of Malaria from Mesoamerica and Hispaniola |
| GMP | Global Malaria Program |
| IRS | Indoor residual spraying |
| KAP | Knowledge, attitudes and practices |
| LAC | Latin America and Caribbean |
| LLIN | Long-lasting insecticide-treated nets |
| M&E | Monitoring & evaluation |
| MERCOSUR | Common Market of the South |
| MOH | Ministries of Health |
| MSH | Management Sciences for Health |
| PAHO | Pan American Health Organization |
| RAVREDA | Amazon Network for the Surveillance of Antimalarial Drug Resistance |
| RDT | Rapid diagnostic test |
| SNEM | Ecuador's National Control Service for Vector-Borne Diseases |
| SWOS | Suriname's Foundation for Scientific Research |
| USAID | U.S. Agency for International Development |
| USP | U.S. Pharmacopeial Convention |

I. Background

The United States Agency for International Development (USAID) launched the Amazon Malaria Initiative (AMI) in 2001 to improve the prevention and control of malaria in partner nations of the Amazon basin. The initiative's mission is to (i) ensure that national malaria control programs in the Amazon basin and selected Central American countries substantially incorporate best practices and (ii) promote evidence-based policy changes in the partner countries. From inception, AMI has maintained a comprehensive view of malaria prevention and control. Its initial focus was to build the evidence base to support the introduction of artemisinin-based combination therapy (ACT) for *P. falciparum* malaria in all Amazon basin countries, and to improve access to, and quality of, malaria diagnosis. As progress was made in introducing ACT, the areas of epidemiological surveillance, vector control and systems strengthening received further attention.

USAID established AMI as a collaborative partnership among organizations (the AMI technical partners) that provide technical and scientific expertise and collaborate with the nations' ministries of health and national malaria control programs grouped in the Amazon Network for the Surveillance of Antimalarial Drug Resistance (RAVREDA) to proactively address malaria prevention and control in a sustainable manner. The partner countries also collaborate with one another and maintain an ongoing exchange of information and expertise through South-South collaboration promoted and supported by AMI. Countries currently supported by AMI include Belize, Brazil, Colombia, Ecuador, Guatemala, Guyana, Honduras, Nicaragua, Panama, Peru, and Suriname.

The initiative's regional approach benefits partner countries through (i) training and technical assistance (TA), (ii) the development of standardized guidelines and protocols, (iii) the comparability of research and monitoring results within and across countries, and (iv) coordinated approaches to addressing shared problems.

II. Purpose of the Trip

From November 10-14, 2014, Julie de Carvalho of Links Media traveled to Paramaribo, Suriname to participate in the Follow-up Meeting for the Guiana Shield and Consultations on the Draft Plan for Artemisinin Resistance Containment and Elimination in South America, organized by the Pan American Health Organization (PAHO) and with support from the Drug Resistance and Containment Unit of the WHO Global Malaria Program (GMP).

Links Media attended in order to provide technical expertise in the area of health communication, specifically behavior change communication (BCC) and advocacy.

III. Scope of Work

The scope of work for Links Media included the following specific activities:

- Accompany the latest results of artemisinin efficacy trials in Brazil, Guyana, Suriname and French Guiana.
- Contribute to technical discussions about the draft Plan for Artemisinin Resistance Containment and Elimination in South America.
- Gain additional insights into the malaria situation on the ground in mining areas of the Guiana Shield, as well as targeted responses planned by Ministries of Health (MOHs) of Brazil, Guyana, and Suriname.
- Refine the communication component of the draft regional plan.
- Guide message development to reach regional decision-makers with a fact-based call to action regarding the status of artemisinin resistance in South America.

IV. Source of Funding for the Trip

Contract funds from USAID/Peru AMI supported this trip.

V. Trip Activities

AMI partners, ministerial representatives of five out of the 11 AMI countries (Brazil, Ecuador, Guyana, Peru, and Suriname), French Guiana, as well as health and medical researchers and members of the diplomatic corps participated in the three-day meeting held in Paramaribo, Suriname.

Day One, November 11, 2014

The PAHO country representative and ambassadors of the US, Guyana, Brazil, and the overseas territories of France to Suriname made opening remarks. After a recap of the situation of artemisinin in the region by PAHO's Regional Malaria Program, Charlotte Rasmussen, a WHO representative from Geneva, presented on current artemisinin resistance containment efforts in Southeast Asia. The fact that resistant strains emerged among a relatively small number of cases in Southeast Asia indicates that resistance may be more likely to be found in low transmission areas including many parts of South America, because parasites may have to be in a higher fitness class to survive.

Comments mainly centered on WHO guidelines for monitoring of delayed parasite clearance in the blood. However, Global Fund representative Matthew MacGregor inquired about AMI/RAVREDA's support of communication activities in the Guiana Shield region during the group discussion; he mentioned that Suriname's new Global Fund grant to work with miners as the main affected population will have a major communication component, and suggested that Links Media's communication work through AMI be leveraged rather than duplicated to achieve the desired behavior change objectives. Links Media encouraged this approach, and provided clarification regarding our scope of work in the public forum. We confirmed that regional and country communication strategy development is supported through AMI, noting that Links Media's work will ultimately depend on each country's decisions about the traditional or non-traditional approaches that they wish to adopt with the miners.

Suriname, Guyana, Brazil and French Guiana presented their resistance surveillance data, although not all countries presented standardized data on Day 3 parasitemia in patients who were treated with ACTs. Suriname's results showed that something

appears to be occurring with parasite sensitivity to artemisinin, however the change only exceeds the WHO threshold in terms of the longer parasite clearance half-life, and not in terms of Day 3 parasitemia. Even then, there were doubts from attendees about the parasite clearance estimator tool that was used. Serious methodological issues were noted with the study conducted in Guyana; also, results were not presented in a format that would make them comparable to the other studies in the region or to the WHO thresholds. In Brazil, routine health facility data collected at sentinel sites has been used to track Day 3 positivity; this cannot be considered a therapeutic efficacy study (TES) per se. Brazil will start a Day 3 efficacy study of artemeter-lumefantrine according to the WHO protocol in January 2015. International partners expressed disappointment in the countries' execution of these important confirmatory studies on artemisinin resistance. Nonetheless, partners expressed continuing commitment to the idea of taking a proactive approach to artemisinin to avoid the emergence of full-fledged resistance.

PAHO/Washington consultant Trent Ruebush provided an overview of the Draft Plan for Artemisinin Resistance Containment and Elimination in South America. The plan's main suggestions included: expanding health posts in remote areas to improve gold miners' access to malaria diagnosis and treatment, training and paying a network of local residents to become disease-specific Malaria Service Deliverers (MSDs) in remote areas, training informal vendors to diagnose and treat malaria as an incentive to stop selling unregulated drugs, working with mining enterprises to provide prevention, diagnosis, and treatment to their workers, and introducing directly observed therapy to improve adherence to antimalarials. The plan also proposed the elimination of *P. falciparum* malaria wherever possible as an important component of resistance containment. Participants agreed that detailed strategies would have to be developed by individual countries according to local specificities.

Day Two, November 12, 2014

Overviews of topics as diverse as the selection of diagnostic methods, collection of epidemiological data and data quality, case management, health system supervision, and the behaviors of key populations were provided. Presentations were followed by in-depth discussions in an open forum regarding the Draft Plan for Artemisinin Resistance Containment and Elimination in South America.

WHO's Pascale Ringwald explained the most updated definition of resistance. Currently, the definition of resistance does not imply a total failure of artemisinin, but rather the delayed clearance of parasites or an observation of "partial" resistance to artemisinin. No parasite is totally resistant as yet. He noted that as new data come in, new definitions will be created. Artemisinin resistance alone could have major consequences for the treatment of severe malaria; also, the pace of parasites' acquisition of artemisinin resistance will contribute to the pace of resistance to partner drugs in ACTs. Treatment failure will not be observed unless and until parasites develop resistance to the partner drug as well as to artemisinin. Thus, a change in the Day 3 positivity rate is a warning that should lead to more sophisticated studies, such as a combination of *in vivo* and molecular studies. Signs of resistance must always be isolated from pharmaco-kinetic effects that may have caused different results (e.g. *in vivo* trials done with ACT versus artesunate in Suriname; artesunate-mefloquine is considered the best, most potent ACT combination). CDC noted that it has a method that produces K13 results in 2-3 hours; USAID is partnering with CDC to obtain blood

samples and sequence K13 in conjunction with *in vivo* trials. Difficulty in working with other entities may prompt Guiana Shield countries to turn to the CDC.

Collection and use of surveillance data was the topic of Gustavo Bretas of PAHO/Suriname's presentation. He noted that mobile telephone service is almost universally available throughout Surinamese territory, including in mining areas. This makes data collection and reporting by MSDs feasible through the use of mobile devices in the field.¹ It also helps to mitigate the lack of testing and tracking data as part of the WHO's T3 (test, treat, track) approach if countries choose to adopt alternative service delivery methods instead of expanding fixed health posts. He noted that the situation in Guyana is different; mobile phone coverage is less common in that country's mining areas. Other data collection techniques would have to be used.

Oscar Lapouble of PAHO/Brazil presented about the primary vector control strategies of LLINs and indoor residual spraying (IRS), with the former strategy considered more relevant among mining populations. This stimulated a discussion of the need to continually monitor vector behavior and consider the efficacy of LLINs as a viable malaria risk reduction strategy. Links Media and other partners guided the discussion towards the importance of considering human behavior as well, particularly where BCC is concerned. For instance, if miners working in French Guiana must hand-carry all supplies to their work sites, it might not be reasonable to try to convince them to carry their own LLINs. PAHO/Washington pointed out that the scale of mining varies, so it could be that some medium or large mining enterprises would be able to provide LLINs to their workers onsite. USAID/Peru's Jaime Chang noted that although evidence for bed nets may be lacking, LLINs could nonetheless be distributed as a communication and awareness-raising tool. Links Media challenged this viewpoint by pointing out that LLINs themselves are a commodity that requires additional messages for proper use, and as such LLIN distribution would add another layer of complexity to the communication strategy. Important diagnosis and treatment messages already proposed to miners included: 1) get malaria diagnosis, 2) use approved ACTs, and 3) always complete treatment. Sleeping under an LLIN would be an additional message about prevention; nonetheless, in discussion the group agreed that it would be important to combine approaches and use all measures possible for prevention, diagnosis and treatment.

Edgar Barillas of MSH presented the topic of antimalarial supply chain management, and PAHO/Washington consultant Trent Ruebush spoke on the topic of pharmaceutical regulation. Main points made during discussions included the MSH recommendation that AMI/RAVREDA not spend more resources that inadvertently legitimize the efficacy of unregulated ACTs such as Artecom by testing their efficacy. According to Stephen Vreden of Suriname's Foundation for Scientific Research (SWOS), studies have shown that the efficacy of the unregulated ACT Artecom is comparable to that of the regulated ACT Coartem. He suggested that communication campaigns should not seek to debunk Artecom's perceived efficacy among miners, because this differs from the experience of many miners who have used Artecom.² Likewise, he opined that

¹ Historically, radio has been used for weekly epidemiological reporting by health agents in Suriname's interior.

² One finding of the 2013 Suriname KAP study was that 85% of survey respondents who used over-the-counter medicines such as Artecom to treat malaria reported that the medicine worked well.

banning the sale of Artecom or artemisinin monotherapies would be unlikely to succeed given the current lack of government control over informal vendors and the absence of a better alternative for treating malaria patients in remote areas. Gustavo Bretas recommended the alternate approach of “flooding the market” with good quality ACTs at a comparatively lower cost as a more effective way to undercut the use of unregulated antimalarials. He said this should be complemented with health promotion to improve diagnosis seeking and completion of treatment with any ACTs that are used.

NMCP representatives from Guiana Shield countries cited policy and implementation challenges as major barriers to containing artemisinin resistance. AMI technical partners urged countries to consider the full range of possibilities and to develop non-traditional interventions where traditional approaches had failed or were not feasible. AMI technical partners also encouraged NMCPs to seek the involvement of other sectors of government in order to be able to carry out some of the alternative approaches.

Marieke Heemskerk, anthropologist and Principal Investigator on the 2013 KAP study in Suriname’s mining areas, emphasized that miners are rational actors who adapt to conditions on the ground. As long as miners cannot obtain better, cheaper diagnosis and treatment in mining areas, they can be expected to continue the rational behavior of purchasing Artecom in advance. It was acknowledged that once a better alternative is provided, there should also be health communication and health promotion with miners. Links Media reinforced the socio-behavioral findings of the KAP study, and recommended that countries use the information about miners’ decision-making processes to develop realistic policies and interventions.

Monique Perret-Gentil of PAHO/Washington focused on the Yanomami people in Venezuela in her presentation addressing indigenous populations. In Guiana Shield countries, 363,720 cases of malaria occurred among indigenous inhabitants from 2008-2014. The relationship is particularly significant in Venezuela’s Bolívar state. Among stable indigenous communities in remote areas, the challenge is to provide primary health care on a continuous basis; language barriers and local conceptions of disease are important to consider. Links Media made the point that “mobile miners” and indigenous peoples are not mutually exclusive. Indigenous men are also involved in mining activities; mobile miners from indigenous villages in Guyana bring malaria back to stable communities. As such, there may be a need to incorporate indigenous languages and worldviews into communication work with mining populations. Gustavo Bretas of PAHO/Suriname made the point that indigenous people in Suriname and French Guiana should be understood as highly mobile and multilingual.

Day Three, November 13, 2014

Countries of the Guiana Shield as well as Ecuador and Panama noted recent progress and provided their perspectives on artemisinin resistance. The situations on the ground differ considerably from one country to another. Numerous challenges to swift implementation were highlighted, including the need to mobilize additional resources in order to improve the implementation quality of ongoing malaria control measures.

Key takeaways were presented and discussed by PAHO and other organizations’ representatives:

- Data collected so far indicates no evidence of artemisinin resistance in the Guiana Shield region of South America, but a significant threat exists.
- Treatment failure with ACTs does not depend on artemisinin resistance alone; parasites' potential loss of sensitivity to partner drugs is also a component.
- South American countries need to take steps to avert a potential disaster such as that seen in Southeast Asia:
 - Better case management of malaria
 - Therapeutic efficacy studies (TES) to monitor trends in sensitivity to antimalarial drugs, along with mandatory K13 testing
- There is an urgent need for K13 results from Suriname, the processing of which has been delayed. The K13 results from Guyana and French Guiana showed that 0% of samples had K13 mutations present.
- It is important to accelerate efforts to eliminate *P. falciparum* malaria wherever possible, because the drugs used to treat this species of malaria are the ones currently threatened by resistance. However, countries can only hope to eliminate malaria after they first implement adequate control measures. Despite the difficulty given ecological factors in the Amazon basin, malaria control is possible if health systems are working adequately.
- **Messages to decision-makers: Artemisinin resistance threatens progress against malaria in the Americas region. It is important to act now to prevent resistance and avoid repeating the experience of Southeast Asia.**

Country Updates

In sideline discussions over the course of the three-day meeting, Links Media obtained additional information from countries that will help to develop and implement one or more communication components to support the regional plan to contain artemisinin resistance.

Brazil – Ongoing activities include the roll-out of an information system in malaria-endemic states with assistance from MSH; an electronic supervision tool will be finished soon and linked to the epidemiological data system. A pilot intervention is occurring at selected health units on the border with Guiana Shield countries; however, there is currently no communication component to this pilot. An MSH consultant is writing a proposal for an intervention to be done in Roraima and Pará states; overall, the strategies for these states need to be better defined. The quality of antimalarials in Brazil is being evaluated together with USP; informal antimalarials in gold mining areas will be evaluated in Pará and Amapá. LLINs have been procured for distribution on the border with Suriname. Finally, an online system is being developed for outbreak detection for each parasite species.

Regionally, a bilateral agreement has been signed with French Guiana, and another is being pursued with Suriname. Brazil and Guyana are engaged in cooperation, albeit

without a formal agreement. Finally, Brazil intends to make use of its pro-tempore presidency of MERCOSUR in the coming year in order to enlist support for regional collaboration by countries that are not currently a part of AMI, such as Venezuela.

Suriname – Regions will be certified and declared free of malaria beginning in 2015. Confirmation will be done through serological surveys. Meanwhile, a Global Fund grant to work with miners has been approved to focus on malaria in mining areas, and implementation will begin by April 2015. The amount is US\$2.8 million over three years, including a considerable communication component (note however that implementation in mining regions is extremely costly). Besides the Ministry of Health, the national Malaria Board is the main institution involved in determining the direction of grant activities. Materials in Portuguese (posters and audiovisual materials) have been developed and deployed with miners in the past using Global Fund resources. Existing film content is of excellent quality and uses the theme “sexy klamboe” (“sexy bed net” in the local language) to promote proper and consistent LLIN use. This could be circulated via DVD and augmented with audio content by a Brazilian band of the popular *forró* genre (e.g. Calcinha Preta). Brazilian miners exclusively watch the international Globo TV network, so television spots are not considered cost-effective; however, cooperation with the Brazilian MOH on the production of TV and radio spots would be welcome.

French Guiana – Recently there have been a few short-term military missions (Anopheles I, Anopheles II) to test for and treat malaria in the mining areas. The military missions managed to collect some useful data that estimates malaria prevalence upwards of 30% in French Guyana’s mining areas. It is estimated that 40,000 people are residing in French Guiana illegally; of them, 8,000 are thought to be involved in illegal mining activities. Brazilians in the territory illegally are currently able to obtain free diagnosis and treatment. However, a long-term model for malaria control in illicit mining areas is lacking. Meanwhile, a major disagreement between French policy and other Amazon basin countries is how to address G6PD deficiency, which is estimated at 10% in French Guiana. In addition to RDTs for confirmatory diagnosis and speciation, RDTs are needed to detect G6PD deficiency in remote areas, unless French policy about the use of primaquine changes in the near future.

Guyana – PAHO has helped the country to procure 10,000 RDTs. The Global Fund will provide a grant for their roll-out in Region 8. Links Media spoke with NMCP director Reyaud Rahman and Global Fund representatives from Geneva to learn more about this grant, and steps needed for Guyana to meet the eligibility criteria. Importantly, countries have to provide a counterpart commitment equal to 40% of grant amounts funded by the Global Fund in order to improve the chances for sustainability. A stakeholder meeting is scheduled for February 2015 as part of the Global Fund process.

Ecuador – A monitoring and evaluation (M&E) officer from the MOH’s Global Fund project, Galo Acosta, was in attendance in Suriname. Ecuador’s National Control Service for Vector-Borne Diseases (SNEM) is currently being absorbed by the MOH. A strategy for how this may occur is available in draft form, and Mr. Acosta agreed to share it with Links Media. We will provide the draft communication strategy that we developed with SNEM in mind; however, there is a need for alignment in light of the

MOH's new approach.

Panama – NMCP coordinator Carlos Victoria shared the weekly malaria report through the end of October 2014, showing the biggest increase in cases in the provinces of the East, Darién, and Comarca Ngobe Buglé. He also informed Links Media that the Clinton Foundation will be funding the research that is needed with indigenous peoples; we discussed the importance of this work in light of the move towards elimination and the trends that indicate the vast majority of remaining transmission has been occurring among indigenous peoples. There are plans to involve traditional healers in malaria control (or *médicos tradicionales*, in Spanish).

VI. Conclusions and Recommendations

Links Media had a fruitful exchange with AMI country representatives and international technical partners. Links Media provided valuable input about how best to approach the risk of artemisinin resistance among miners in the Guiana Shield region.

Based on the work conducted during this meeting, Links Media recommends that:

- In collaboration with Links Media, countries should consider defining the strategies they would like to pursue with the key populations of interest when it comes to malaria control and the emergence of resistance. Mobile Brazilians are the main population that needs to be reached with either traditional or non-traditional prevention, diagnosis and treatment strategies. Country-level decisions will determine the direction of communication interventions.
- Global Fund materials should be disseminated among countries and on BCC web portals, in order to leverage rather than duplicate work that has been done in the past in Brazil, Guyana, and Suriname.
- Malaria in Suriname's mining areas should be the main issue that is addressed in Links Media's country communication strategy for Suriname, given that malaria is considered non-existent in other parts of the country. The Suriname communication strategy should build on what was already submitted to the Global Fund, and should ideally be finalized with the NMCP by March 2015.
- In light of the need for the mobilization of broader support, AMI technical partners should work with ministries of health and finance, rather than exclusively with NMCPs.
- The AMI/RAVREDA Annual Evaluation Meeting to be held in Brazil in March 2015 should include breakout sessions in order to create a structured time for smaller groups to work on addressing shared issues such as malaria control among miners in the Guiana Shield.
- WHO's technical definition of "suspected partial resistance" to artemisinin should be translated for lay audiences using a similar approach to the "*plain language*"³ model to effectively convey the urgent call to action that needs to be made to decision-makers in Guiana Shield countries. The message should be that the risk of resistance exists based on current conditions on the ground, which resemble what the conditions were like in Southeast Asia. Economic benefits (e.g. that cost avoidance is possible if the existing firstline therapies can be preserved) should be raised as a way to convince country leadership that the

³ See: <http://www.plainlanguage.gov/>.

risk is high if current trends continue. Action is needed now to prevent treatment failures and avert a public health disaster.

Annex 1

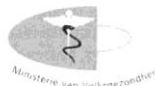
Event Agenda



Pan American
Health
Organization



World Health
Organization
REGIONAL OFFICE FOR THE AMERICAS



**Follow-up Meeting for the Guyana Shield and
Consultations on the draft Plan for Artemisinin Resistance Containment and Elimination in South America**
11-13 November 2014
Paramaribo, Suriname

Objectives:

- Discuss updates from the WHO Drug Resistance and Containment Technical Expert Group (TEG)
- Discuss the results / updates from the ongoing therapeutic efficacy trials in Guyana and Suriname and other activities proposed during previous Guyana Shield meetings;
- Discuss options for mitigating key challenges that contribute to the development of artemisinin resistance;
- Obtain country and stakeholder feedback on the draft strategic document Plan for Artemisinin Resistance Containment and Elimination in South America.
- Discuss corresponding roles and commitments of countries and stakeholders in implementing the Plan for Artemisinin Resistance Containment and Elimination in South America

Day 1 – 11 November (Tuesday)

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| Moderator: | Gustavo Bretas, PAHO | |
| 09:00 – 9:30 a.m. | Registration | |
| 9:30 – 09:45 a.m. | Welcome / Opening | Francoise Barten, PAHO-SUR; MOH-SUR; Diplomatic Missions |
| 09:45 – 10:20 a.m. | Agenda Overview / Introduction of Participants Malaria in the Americas and the Evolving Threat of Artemisinin Resistance in the Guyana Shield | Keith Carter, PAHO |
| 10:20 – 11:00 a.m. | Updates on Artemisinin Resistance: Current situation and Containment Efforts (20 mins. presentation; 20 mins. discussion) | Charlotte Rasmussen, WHO-GMP |
| 11:00 – 11:30 a.m. | Coffee Break | |
| 11:30 – 12:00 p.m. | Results: Confirmatory studies in Suriname (including K-13) (15 mins. presentation; 15 mins. discussion) | Stephen Vreden / Malti Adhin (SUR) |
| 12:00 – 12:30 p.m. | Results: Confirmatory studies in Guyana (including K-13) (15 mins. presentation; 15 mins. discussion) | Reyaud Rahman / Keith Moore / Supatra Abraham (GUY) |
| 12:30 – 01:00 p.m. | Updates regarding TES and Efforts implemented to prevent Artemisinin Resistance in Brazil (15 mins. presentation; 15 mins. discussion) | Camila Damasceno / Liana Blume (BRA) |
| 01:00 – 2:00 p.m. | Lunch | |
| Moderator: | Meera Venkatesan, USAID | |
| 2:00 – 2:30 p.m. | Updates regarding TES and Efforts implemented to prevent Artemisinin Resistance in French Guiana (15 mins. presentation; 15 mins. discussion) | TBD (FGU) |

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| 2:30 – 3:00 p.m. | Updates regarding TES and Efforts implemented to prevent Artemisinin Resistance in Venezuela (15 mins. presentation; 15 mins. discussion) | TBD (VEN) |
| 3:00 – 3:30 p.m. | Updates on Implementation of other Relevant Measures (through AMI/RAVREDA) (15 mins. presentation; 15 mins. discussion) | Nicolas Ceron, PAHO |
| 3:30 – 4:00 p.m. | Coffee Break | |
| 4:00 – 4:30 p.m. | Malaria Epidemiology in an Illegal Gold Mining camp in French Guiana. (15 mins presentation; 15 mins. discussion) | Army Health Services, French Guiana |
| 4:30 – 5:30 p.m. | Overview: Draft Plan for Artemisinin Resistance Containment and Elimination in South America (20 mins presentation; 40 mins. discussion) | Trenton Ruebush, PAHO |

Day 2 – 12 November (Wednesday)

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| Moderator: | Jaime Chang, USAID | |
| 09:00 – 9:40a.m. | Artemisinin Resistance: Updated Definitions and Implications on Anti-malaria Drug Resistance Surveillance and Global Containment Efforts (20 mins. presentation; 20 mins. discussion) | Pascal Ringwald, WHO-GMP |
| 9:40 – 10:10 a.m. | Issues, Challenges and Strategic Approaches on Case Detection and Treatment of Malaria (10 mins presentation; 20 mins. discussion) | Alexandre Macedo, CDC |
| 10:10 – 10:40 a.m. | Issues, Challenges and Strategic Approaches on Collection and use of Surveillance Data (10 mins presentation; 20 mins. discussion) | Gustavo Bretas, PAHO |
| 10:40 – 11:10 p.m. | Coffee Break * | |
| 11:10 – 11:40 p.m. | Issues, Challenges and Strategic Approaches on Monitoring Antimalarial Therapeutic Efficacy (10 mins presentation; 20 mins. discussion) | Lise Musset, IP-Cayenne |
| 11:40 – 12:10 p.m. | Issues, Challenges and Strategic Approaches on Vector Control (10 mins presentation; 20 mins. discussion) | Oscar Lapouble, PAHO |
| 12:10 – 12:50 p.m. | Issues, Challenges and Strategic Approaches on Supply Chain Management (10 mins presentation; 20 mins. discussion) | Edgar Barillas, MSH |
| 12:50 – 2:00 p.m. | Lunch | |
| Moderator: | Laure Garancher, PAHO-CPC | |
| 02:00 – 02:30 p.m. | Issues, Challenges and Strategic Approaches on Strengthening Pharmaceutical Regulation for Antimalarials (10 mins presentation; 20 mins. discussion) | Trenton Ruebush, PAHO |

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| 02:30 – 03:00 p.m. | Issues, Challenges and Strategic Approaches on Engaging the Mining Sector (10 mins presentation; 20 mins. discussion) | Marieke Heemskerk, SUR |
| 3:30 – 4:00 p.m. | Issues, Challenges and Strategic Approaches on Engaging Indigenous Populations (10 mins presentation; 20 mins. discussion) | TBD > Dr. Monique Perret-Gentil |
| 4:00 – 4:30 p.m. | Coffee Break | |
| 4:30 – 5:00 p.m. | Issues, Challenges and Strategic Approaches on Program Coordination and Management (10 mins presentation; 20 mins. discussion) | TBD > Dr. Keith Carter |
| 5:00 – 5:30 p.m. | Issues, Challenges and Strategic Approaches on Staff Performance Supervision (10 mins presentation; 20 mins. discussion) | Edgar Barillas, MSH |

Day 3 – 13 November (Thursday)

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| Moderator: | Matthew MacGregor, Global Fund | |
| 09:00 – 09:30 a.m. | Synthesis of Day 2 Discussions on Issues, Challenges and Strategic Approaches | Oscar Galan, PAHO |
| 9:30 – 10:00 a.m. | Issues, Challenges and Strategic Approaches On Building Political Support and Addressing Funding Gaps (10 mins presentation; 20 mins. discussion) | Rainier P. Escalada, PAHO |
| 10:00 – 10:30 a.m. | Knowledge Gaps, Research Priorities and New Tools / Innovation (10 mins presentation; 20 mins. discussion) | Monique Perret-Gentil, PAHO |
| 10:30 – 11:00 a.m. | Comments / Perspectives from Countries (10 mins. each) | BRA; FGU: GUY |
| 11:00 – 11:30 a.m. | Coffee Break | |
| 11:30 – 12:40 p.m. | Comments / Perspectives from Countries (10 mins. each) | SUR, VEN; BOL, COL, ECU, PER, PAN |
| 12:40 – 2:00 p.m. | Lunch | |
| Moderator: | Oscar Lapouble, PAHO-BRA | |
| 02:30 – 4:00 p.m. | Comments / Perspectives from Partner Agencies / Sector Representatives (10 mins. each) | Bill and Melinda Gates Foundation; CDC Global Fund; USAID; Sector Representatives (i.e. Mining, Military, Research / Academe, etc.) |
| 4:00 – 4:30 p.m. | Coffee Break | |
| 4:30 – 5:15 p.m. | Next Steps / Conclusions | Keith Carter, PAHO |
| 5:15 – 5:30 | Closing | WHO-GMP; MOH-SUR; PAHO-SUR |

Annex 2
Request for Country Clearance

From: New, Lorenzo B (Paramaribo) [NewLB@state.gov]
Sent: Fri 11/7/2014 9:04 AM
To: jdecarvalho@linksmedia.net
Cc: Chang, Jaime (PERU/HEO); deRandamie, Astrid I (Paramaribo)
Subject: RE: Request for Action - Electronic Country Clearance (eCC)

Julie,

We concur with your travel to Suriname next week. See you then.

Regards,

Lorenzo

This email is UNCLASSIFIED.

From: Julie de Carvalho [<mailto:jdecarvalho@linksmedia.net>]
Sent: Thursday, November 06, 2014 11:50 AM
To: New, Lorenzo B (Paramaribo)
Cc: Chang, Jaime (PERU/HEO)
Subject: RE: Request for Action - Electronic Country Clearance (eCC)

Greetings Mr. New,

I am writing to close the loop on this request from Monday. Can you confirm that the U.S. Embassy concurs with my travel to Suriname next week? I apologize for any redundancy in case you have already replied directly to Dr. Chang of USAID/Peru.

Best regards,

Julie



Julie N. de Carvalho, MPH | Senior Project Manager
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www.linksmedia.net

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From: New, Lorenzo B (Paramaribo) [<mailto:NewLB@state.gov>]
Sent: Monday, November 03, 2014 1:52 PM
To: Julie de Carvalho
Cc: Chang, Jaime (PERU/HEO); Brian Kubiak; Linksg
Subject: RE: Request for Action - Electronic Country Clearance (eCC)

Yes, USAID/Peru may make the entry on your behalf. No worries.

Thanks,

Lorenzo

This email is UNCLASSIFIED.

From: Julie de Carvalho [<mailto:jdecarvalho@linksmedia.net>]
Sent: Monday, November 03, 2014 3:33 PM
To: New, Lorenzo B (Paramaribo)
Cc: Chang, Jaime (PERU/HEO); 'Brian Kubiak'; 'Linksg'
Subject: RE: Request for Action - Electronic Country Clearance (eCC)

Dear Mr. New,

Thanks for your prompt reply. No, as contractor staff I am unable to make an entry at ecc.state.gov. It is possible that someone at USAID/Peru may be able to make the entry on my behalf, and I will check on that. However, if that fails, we have sometimes been able to obtain USAID mission or U.S. Embassy approval of these requests via email.

Kind regards,

Julie



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From: New, Lorenzo B (Paramaribo) [<mailto:NewLB@state.gov>]
Sent: Monday, November 03, 2014 1:27 PM
To: Julie de Carvalho
Cc: Chang, Jaime (PERU/HEO); Brian Kubiak; Linksg
Subject: RE: Request for Action - Electronic Country Clearance (eCC)

Ms. de Varvalho,

Thank you for forwarding your information. Did you make an entry at ecc.state.gov? I'll need to approve your request there.

Thanks,

Lorenzo

This email is UNCLASSIFIED.

From: Julie de Carvalho [<mailto:jdecarvalho@linksmedia.net>]
Sent: Monday, November 03, 2014 12:58 PM
To: New, Lorenzo B (Paramaribo)
Cc: Chang, Jaime (PERU/HEO); 'Brian Kubiak'; 'Linksg'
Subject: Request for Action - Electronic Country Clearance (eCC)
Importance: High

Dear Mr. New:

This e-mail is to request country clearance for Ms. Julie de Carvalho, Senior Project Manager. Ms. de Carvalho will be traveling to Paramaribo, Suriname on or about November 11 – 13, 2014 on behalf of Links Media, which is the USAID implementing partner for the communication component of the Amazon Malaria Initiative (AMI).

The purpose of Ms. de Carvalho's visit will be to participate in the "Follow-up Meeting for the Guiana Shield and Consultations on the Draft Plan for Artemisinin Resistance Containment and Elimination in South America," organized by the Pan American Health Organization and with support from the Drug Resistance and Containment Unit of the WHO Global Malaria Programme (GMP).

Attached you will find the completed eCC form. This activity has received concurrence from the USAID/Peru Contracting Officer Representative (COR), Dr. Jaime Chang. Costs incurred under this activity have been budgeted under the project.

Your prompt action is kindly requested.

Sincerely,

Julie N. de Carvalho, MPH



Julie N. de Carvalho, MPH | Senior Project Manager
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From: Jaime Chang [jachang@usaid.gov]

Sent: Thu 10/23/2014 1:04 PM

To: Julie de Carvalho [jdecarvalho@linksmedia.net]

Subject: Re: FW: Invitation-Follow-up Meeting for the Guiana Shield and Consultations on the draft Plan for Artemisinin Resistance Containment in South America (Paramaribo, 11-13 Nov. 2014)

Dear Julie,

Please plan to attend this meeting.

Jaime

Annex 3 Selected Photographs



Links Media participates in Paramaribo meeting with other AMI technical and country partner representatives.



Anthropologist Marieke Heemskerk of Social Solutions presents finding of KAP study in Suriname's mining areas.